

SUBJECT CODE NO: E-8152
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Electrical Power System) Examination Nov/Dec 2017
Electrical Machine Analysis & Modeling
(Revised)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i. Attempt any two questions from each section.
 - ii. Assume suitable data wherever necessary
 - iii. Figures to the right indicate full marks.
 - iv. All questions carry equal marks.

Section A

- Q.1 a) Explain the principle of electromechanical. Energy conversion and also explain energy balance equation. 10
 b) Derive the relation for winding inductance in 3 – ph, 2 – pole symmetrical Induction machine. 10
- Q.2 a) Explain elementary direct current machine with its voltage equation. 10
 b) Explain the dynamic performance of permanent magnet D.C. motor during sudden change in load torque. 10
- Q.3 a) Explain the equation of transformations. 10
 b) Apply Qdo transformation to the inductive element. 10

Section B

- Q.4 a) Derive torque equation of induction motor in machine variables. 10
 b) Explain dynamic performance of symmetrical induction motor during sudden change in load torque. 10
- Q.5 a) Derive the stator voltage equation in arbitrary reference frame variables of symmetrical synchronous machine. 10
 b) Explain rotor angle & angle between rotors in symmetrical synchronous machine. 10
- Q.6 a) Explain the modeling & hydroturbines and their governing system. 10
 b) Explain the modeling of transformer. 10